



ADDRESSES

AT THE UNVEILING OF THE

JOSEPH HENRY STATUE,

AT

WASHINGTON, D. C., APRIL 19, 1883,

BY

CHIEF-JUSTICE WAITE,

CHANCELLOR OF THE SMITHSONIAN INSTITUTION,

AND

NOAH PORTER, LL.D.,

PRESIDENT OF YALE COLLEGE.

FROM THE SMITHSONIAN REPORT FOR 1883.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1884.





BRONZE STATUE OF JOSEPH HENRY.

ERECTED ON THE SMITHSONIAN GROUNDS BY AUTHORITY OF AN ACT OF CONGRESS APPROVED JUNE 1
1850. INSTITUTED JULY 1, 1850.

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REPORT ON THE HENRY STATUE.

To the Board of Regents of the Smithsonian Institution :

GENTLEMEN: An act of Congress (No. 71), approved by the President June 1, 1880, authorized "the Regents of the Smithsonian Institution to contract with W. W. Story, sculptor, for a statue in bronze of JOSEPH HENRY, late Secretary of the Smithsonian Institution, to be erected upon the grounds of said Institution; and for this purpose, and for the entire expense of the foundation and pedestal of the monument, the sum of \$15,000" was appropriated.

In accordance with the authority conferred in the above act, the Regents of the Institution executed a contract with Mr. Story on the 8th of December, 1880, for the statue. At Mr. Story's request a number of photographs of Professor Henry were sent to him to be used in preparing the model of the statue, and also a cast of the face and bust executed by Mr. Clark Mills, together with an academic gown similar to the one used by the professor when a member of the faculty of Princeton College. A contract was made with the Maine Red Granite Company and the Quincy Granite Polishing Works for a pedestal according to a design furnished by Mr. Story—the die of Red-Beach granite finely polished, octagonal in shape, 4 feet in diameter, 4 feet high, and the cap and bases of Quincy gray granite, fine-axed, the whole pedestal being 7 feet 3 inches in height. The statue itself is nine feet high.

Owing to certain imperfections found in the statue after it had been cast, it became necessary to reproduce it, and it was not until November, 1882, that it was actually completed and shipped from Rome. The statue was received in Washington in December, but, owing to the lateness of the season, it was decided to defer its erection until the following spring, and the date selected was the 19th of April, 1883, that being the time when the National Academy of Sciences (of which Professor Henry had been president at the time of his death) would hold its semi-annual meeting in Washington. For the site of the statue a triangular plot on the Smithsonian grounds, about 150 feet to the northwest of the building, was chosen by the Regents, and the selection met the full approval of Mr. Story, who visited Washington in the winter.

The Chancellor of the Institution was requested by the Regents to perform the ceremony of unveiling it.

Hon. Hester Clymer was selected to deliver an address appropriate

to the occasion, but on account of ill health declined the appointment, and President Noah Porter, of Yale College, one of the Regents, was invited by the Executive Committee to perform the service.

Rev. Dr. John Maclean and Rev. A. A. Hodge, of Princeton, N. J., were invited to offer prayer on the occasion. By reason of ill health, however, Dr. Maclean was prevented from attending.

The direction of the executive details of the occasion were assigned by Professor Baird to Mr. William J. Rhee, the chief clerk.

By direction of the Board of Regents, the following letter was addressed by Professor Baird, Secretary of the Institution, to the Hon. Speaker of the House of Representatives, January 17, 1883:

“SIR: I have the honor to inform the House of Representatives that in accordance with the act of Congress of June 1, 1880, providing that the Regents of the institution be ‘authorized to contract with W. W. Story, sculptor, for a bronze statue of Joseph Henry, late Secretary of the Smithsonian Institution, to be erected in the grounds of said institution,’ the statue has been executed and received in Washington, and that Thursday the 19th of April has been selected as the day for the public unveiling of the same.

“The Congress of the United States having ordered this statue and made the appropriation necessary therefor, the Board of Regents respectfully invite the Senate and House of Representatives to be present on the occasion of its formal presentation to the public.

“I am, sir, very respectfully, your obedient servant.”

A joint resolution was passed by Congress, February 24, 1883, accepting the invitation to attend the inauguration of the statue.

“No. 16. Joint resolution accepting the invitation of the Regents of the Smithsonian Institution to attend the inauguration of the statue of Joseph Henry.

“Whereas, in a communication from Spencer F. Baird, Secretary of the Smithsonian Institution, Congress was informed that in accordance with an act of June first, eighteen hundred and eighty, the bronze statue of Joseph Henry, late Secretary of the Smithsonian Institution, had been completed; and whereas, in the same communication, Congress was respectfully invited to be present on the occasion of its formal presentation to the public, upon Thursday the nineteenth of April next; Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the said invitation be, and the same is hereby, accepted by the Senate and House of Representatives; and that the President of the Senate select seven members of that body, and the Speaker of the House of Representatives fifteen members of that body, to be present and represent the Congress of the United

States upon the occasion of the presentation and inauguration of said statue."

Approved February 24, 1883. (Statutes, volume XXII, page 659.)

The following gentlemen were selected as the joint committee to represent Congress:

Senators: Hon. George F. Hoar, of Massachusetts; Eli Saulsbury, of Delaware; Samuel J. R. McMillan, of Minnesota; Joseph R. Hawley, of Connecticut; William Mahone, of Virginia; Omar D. Conger, of Michigan; James B. Groome, of Maryland.

Members of the House of Representatives: Hon. John T. Wait, of Connecticut; William Aldrich, of Illinois; Thomas M. Browne, of Indiana; John A. Kasson, of Iowa; George M. Robeson, of New Jersey; John W. Candler, of Massachusetts; R. J. Walker, of Pennsylvania; A. H. Pettibone, of Tennessee; J. Proctor Knott, of Kentucky; J. Randolph Tucker, of Virginia; Andrew G. Curtin, of Pennsylvania; Randall L. Gibson, of Louisiana.

In accordance with the previous arrangements, the statue was unveiled on Thursday afternoon, April 19, 1883, at 4 o'clock. The day was clear, mild, and propitious, and about ten thousand people assembled to witness the ceremonies.

The invited guests met in the lecture hall of the National Museum, and proceeded to the platform which had been erected around the statue. General O. M. Poe acted as chief marshal, and Messrs. Daniel Leech, John D. McChesney, and George S. Hobbs as assistant marshals.

The following order of arrangement was adopted:

The President of the United States;* the Chief Justice of the United States, Chancellor of the Institution; the orator of the day, President Noah Porter, LL.D., of Yale College; the chaplain of the day, Rev. A. A. Hodge, D. D.; the family of Professor Henry.

The establishment of the Smithsonian Institution, viz, the Vice-President, Secretary of State, Secretary of the Treasury, Secretary of War, Secretary of the Navy, Secretary of the Interior, Postmaster-General, Attorney-General, Commissioner of Patents.

The Regents and Secretary of the Smithsonian Institution, and Ex-Regents; the Joint Committee of the Senate and House of Representatives, appointed to represent Congress; the Diplomatic Corps; the Associate Justices of the Supreme Court of the United States; Judges of United States Courts; Claims Commissions; Judges of the Supreme Court of the District of Columbia; Senators and Members of the House of Representatives; Commissioners of the District of Columbia; the General and Officers of the Army; the Admiral and Officers of the Navy; Ex-Members of the Cabinet and Ex-Ministers of the United States; National Academy of Sciences; Founders of the Henry trust fund for Science; the Commissioner of Agriculture; the Assistant Secretaries of

*The President was absent from the city at the time.

Departments; Solicitor-General and Assistant Attorneys-General; the United States Marshal and Officers of courts; the Light-House Board; the Heads of Bureaus; the Superintendent of the Coast Survey, the Superintendent of the Naval Observatory, the Superintendent of the Nautical Almanac, the Director of the Geological Survey, the Librarian of Congress; the Commissioner of Public Buildings, the Architect of the Capitol, the Superintendent of the Government Printing Office, the Superintendent of the Botanical Gardens, the Visitors of the Government Hospital for the Insane; officers of the Senate and House of Representatives; Trustees of the Corcoran Gallery of Art; the Washington Monument Society; officers and employés of the Smithsonian Institution, Bureau of Ethnology, National Museum, and United States Fish Commission; Alumni of the College of New Jersey; members of scientific organizations, &c.

While this procession was moving from the hall in the Museum building to the platform at the statue, the Marine Band, furnished through the courtesy of Hon. William E. Chandler, Secretary of the Navy, and of Colonel McCawley, Commandant of the Marine Corps, played a grand march, "*Transit of Venus*," composed by J. P. Sousa, the leader of the band.

The following was the order of exercises:

I. MUSIC—Marine Band (J. P. Sousa, conductor), "The Hallelujah Chorus" (*Messiah*), *Händel*.

II. PRAYER—Rev. A. A. HODGE, D. D., of Princeton, N. J.

III. ADDRESS—Chief Justice WAITE, Chancellor of the Institution.

IV.

UNVEILING THE STATUE.

V. MUSIC (Philharmonic Society and full Marine Band, R. C. Bernays, conductor)—Grand chorus, "The Heavens are Telling" (*Creation*), *Haydn*.

VI. ORATION—Rev. DR. NOAH PORTER, President of Yale College.

VII. MUSIC (J. P. Sousa, conductor)—Grand March Triumphale, "Schiller," *Meyerbeer*.

The Philharmonic Society was assisted by members of the Washington Operatic Association, the Rossini and Church Choir Choral Societies, the Washington Sangerbund and Germania Mannerchor. The arrangements for the music were made by a Committee of the Philharmonic Society, of which Prof. F. Widdows was chairman. The Chief of Police furnished a detail for the grounds; Mr. Edward Clark, Architect of the Capitol, supplied music stands and stools for the Marine Band; the Quartermaster's Department lent flags, and the Department of Agriculture living plants for decorating the platform. Mr. W. R. Smith, Superintendent of the Botanic Gardens, also furnished floral decorations.

The platform was constructed under the superintendence of Mr. C. W. Schuerman and Mr. G. W. Field, and the mechanical arrangements for unveiling the statue were devised by Mr. Joseph Palmer. At the

moment of unveiling the statue the news was telegraphed from an instrument on the platform, which had been placed there by Mr. L. Whitney, the Superintendent of the Western Union Telegraph Company. The ushers on the platform were Messrs. W. C. Lewis, Harry C. Shuster, Henry D. Finckel, William T. Wyman, Edward C. Bryan, Frank Bryan, William B. Stimpson, and Ellis Lammond; Mr. Henry Horan, Superintendent of the National Museum, having general charge of the accommodations of the public.

Respectfully submitted.

PETER PARKER,
W. T. SHERMAN,
Executive Committee.

WASHINGTON, *December 15, 1883.*

PRAYER

BY

REV. DR. HODGE.

Eternal and almighty God, Creator, Preserver, and Governor of the world, we have gathered here to adore Thy holy name, to implore Thy divine protection, and to invoke Thy blessing.

We bless Thee that, having brought the physical universe to its present perfection and made it the vehicle of reflecting and expressing Thy transcendent perfections, Thou hast made man in Thine own likeness and endowed him with intelligence, capable of discerning and of interpreting the intellectual basis of all phenomena, the personal element in all law. We bless Thee that Thou hast never left Thyself without a witness even in the darkest period of human history; that wherever men have sought the Lord, however feebly, if haply they might feel after Him and find Him, He has been found always to be not far from any one of us, seeing that He is imminent in all existence and in all life, and that in Him we live and move and have our being.

We bless Thee that Thou hast sent through the ages a long line of inspired prophets and teachers, crowned by the incarnation in human flesh of Thy co-equal Son, to reveal in ever-increasing fullness the nature of Thy moral government, the method of Thy redemption, and the glory of Thy kingdom; so Thou hast in these later days sent into the physical universe many intelligent and earnest students, who, in various departments, are investigating the secrets of nature, and interpreting the methods of Thy sublime working throughout the vast areas of time and space. We bless Thee that Thou art gathering to Thyself so vast and rich and constant a revenue of glory through the loving ministry of science in all her various provinces. We thank Thee that so many of her princes have been loyal to Thy service and have rejoiced to make all men to realize the depth of the riches both of the wisdom and of the knowledge of God.

Especially we thank Thee for the spotless example of Thy servant, whose illustrious career is to be commemorated throughout all time by

the monument we are now unveiling. We bless Thee that he was as humble and simple in his Christian faith as he was great in his intellectual achievements or pre-eminent in his world-wide fame. We pray Thee that his memory as a Christian philosopher may be preserved in imperishable freshness and force through succeeding generations, that his influence for good may be ever extended, and that his example may be followed as his serene fame excites the emulation of multitudes of the interpreters of nature and of the teachers and benefactors of mankind.

And now, in anticipation of the general judgment, when in the resurrection the perfected Church shall enter the new heavens and the new earth of the perfected physical universe, we ascribe unto Thee, at once the Lord of nature and of grace, blessing and glory, and wisdom, and thanksgiving, and honor, and power, and might, unto our God that sitteth upon the throne, and unto the Lamb, for ever and ever. Amen.

ADDRESS
OF
CHIEF JUSTICE WAITE.

On the 1st of June, 1880, at the instance of Mr. Morrill, of Vermont, in the Senate, and of Mr. Clymer, of Pennsylvania, in the House of Representatives, Congress authorized the Regents of the Smithsonian Institution to contract with Mr. W. W. Story "for a statue, in bronze, of Joseph Henry, late Secretary of the Smithsonian Institution, to be erected on the grounds of the Institution"; and the Regents, availing themselves of the presence in Washington of the members of the National Academy of Sciences, with which Professor Henry was so prominently and so honorably connected for many years, have asked you here to-day to witness the presentation to the public of the result of what has been done under this authority.

On the 10th of August, 1846, Congress established the Smithsonian Institution, to take the property which had been given to the United States by the will of James Smithson, of England, to found an establishment of that name "for the increase and diffusion of knowledge among men."

The business of the Institution was to be managed by a Board of Regents, and they were required to elect some suitable person as Secretary of the Institution. On the 3d of December, 1846, the Board met to perform that duty, and before entering on the election adopted the following resolution :

"*Resolved*, That it is essential for the advancement of the proper interests of the trust that the Secretary of the Smithsonian Institution be a man possessing weight of character and a high grade of talent; and that it is further desirable that he possess eminent scientific and general acquirements; that he be a man capable of advancing science and promoting letters by original research and effort, well qualified to act as a respected channel of communication between the Institution and scientific and literary individuals and societies in this and foreign

countries; and, in a word, a man worthy to represent before the world of science and letters the Institution over which this Board presides."

Immediately after the adoption of this resolution the Board proceeded to the election, and the first ballot resulted in the choice of Professor Henry, then occupying the chair of natural philosophy in Princeton College. Experience has shown that the world possessed no better man for such a place. He was all the resolution required, and more; and from the day of his election until now, the wish has never been expressed that another had been chosen in his stead.

He accepted the appointment on the 7th of December, and on the next day, the 8th, finished and sent to the Regents an elaborate paper giving his views of the will of Smithson, and presenting a plan for the organization of the Institution. He entered on the performance of his duties on the 21st of December, and from that day until his death, on the 13th of May, 1878, almost one-third of a century, he was engaged in making the Smithsonian Institution what its munificent founder desired it to be—an active and efficient instrument for the increase and diffusion of knowledge.

The statue which will now be unveiled has been erected by the United States as a token of gratitude for the labors of his useful life, and for his faithful administration of the important public trust so long in his keeping.

ORATION
BY
PRESIDENT NOAH PORTER.

We are assembled to complete the long series of public honors to the late Joseph Henry by unveiling the statue which has been erected to his memory. These honors have been manifold, but each one of them has been well deserved and most cordially bestowed.

His funeral obsequies were attended by the President of the United States and other officials of the Government which he had so faithfully served, by representatives from the many learned and scientific societies of which he had been a conspicuous member and ornament, and by a large following of those who honored and mourned him as a friend.

Subsequently a more formal commemoration of his scientific and public services was held at the Capitol, at which were present the Executive of the nation, the Judiciary, the Senate, and the House of Representatives. On this occasion a discriminating and sympathizing sketch of his personal and public life was given by one who had known him long and was singularly qualified to do him justice in every particular. This was followed by other warm and eloquent tributes to his genius as a philosopher and his excellence as a man. Memorable among these were the ringing words of the noble Rogers, whose own sudden euthanasia was like the translation of a prophet; and the warm-hearted eulogy of the generous and glowing Garfield, whose noble life was slowly wasted that it might measure the intensity of the nation's grief.

Many, if not all, of the institutions of the country with which Professor Henry had a more or less intimate connection have also honored him by records and estimates of his services to science, education, and philosophy. The tributes to his honor from other countries have also been cordial and numerous.

Last of all, the two Houses of Congress, with the approval of the President, have ordered that a statue in bronze should be erected within

the grounds of the Institution, which was the creation of his genius and industry, as a permanent memorial of his services and his worth. This statue is now completed, and has this moment been unveiled to public view. We are here to receive the first impressions of this enduring monument, which we trust will stand for many generations, to declare the fame and attest the manifold excellences of this eminent servant of science and benefactor of the American people.

The proprieties of the occasion forbid that I should recite the events of Professor Henry's life or attempt a critical judgment of his services or his merits as a philosopher. To do either were superfluous, in view of the accuracy and fullness with which both have been done by others. All that I shall aim to do is to give a summary expression to that estimate of the man and his work which I am confident other generations will accept, and which this statue is designed to suggest and perpetuate.

It is pleasant for us to notice that Professor Henry was born on the eve of this century, so memorable for the development of the sciences of nature and their splendid applications to art; that just as this new era was opening, the wonders of the physical universe were beginning to be explored by the wondering eyes of our infant philosopher. They were wondering eyes indeed, wakeful, sensitive, and responsive from the first. It is a mistake to suppose, because Professor Henry's external circumstances were unfavorable to the early discipline of books and the school, that his mind was ever crass and inactive. His own testimony and that of his friends is positive that from the first he was a sensitive and dreamy boy, who found enough in the common earth and air, and the play of common scenes to stimulate his creative powers and to furnish material for his long day dreams, as he lay on the sunny hillside and looked up into the glowing sky. Against the animalism and sensuality which are incident to an aimless youth he was defended by the stern moralities and the wholesome religion of his domestic training, enforced as these were by the economies of a straitened but not ignoble household. Indeed, the household was far removed from either. Were we curious in these matters we should find that he was born of gentle blood, being of Celtic stock on the mother's side, running back through many generations to a noble house, and preserving its coat of arms and motto, "I fear no one, I despise no one," which this noble descendant never dishonored. His mother was beautiful and refined and full of spirit, who had a home in Albany, and but little else, when her husband died, the son being then seven years of age. Before this event he had been removed to the country, the

mother's original home, the family retaining their house in Albany as their principal reliance. In this village young Henry was the pet for several years, handsome, frolicsome, and venturesome on the one hand, and dreamy, wondering, and self-reliant on the other, rejoicing in adventure rather than in books, till a romance suddenly falling in his way kindled his imagination, and unveiled human life as pictured by the fancy with prismatic hues—awakening thus a brief passion for fiction and the drama. The transition to the acted drama was natural to his inventive and energetic nature, and for a time he delighted to attend dramatic representations when at Albany for longer or shorter periods, and to reproduce them at home, as his changing life led him from one occupation to another. If we connect these well-known facts with what he himself has written of the elements and order of education, we conclude that his early musings and questionings, his boyish sports and adventures, were fondly remembered by him as the inspiration of his rational and scientific life. “The cultivation of the imagination,” he writes, “should be considered an essential part of a liberal education, and this may be spread over the whole course of instruction, for, like the reasoning faculties, the imagination may continue to improve until late in life.” “Memory, imitation, imagination, and the faculty of forming mental habits exist in early life, while the judgment and reasoning faculties are of slow growth.” “The order of nature is that of art before science, the entire concrete first and the entire abstract last.” These are wise and weighty words, but they are of special interest when we bethink ourselves that the writer, when he penned them, was doubtless all the while thinking of a dreaming boy, half buried in the grass, looking up wistfully into the sky, thinking wondrous thoughts too deep for tears, perhaps peopling with phantoms and fairies that world of nature which he subsequently penetrated by those wise questionings and ingenious theories which his sagacious experiments turned into solid verities. He certainly could have been thinking of no one else when in the same connection he so positively affirms, “The future character of a child, and that of a man also, is in most cases formed probably before the age of seven years.”

From these musings he was awakened in his later boyhood suddenly and abruptly, as by a call from nature herself. During a week of indisposition, perhaps of serious reflection over an aimless and possibly a tempted life, he was suddenly aroused by the consciousness that the common phenomena of nature are the products of forces acting under laws, and that it is possible for man to interpret these mysteries. It was

a simple sentence or two from a common-place though useful book, but the thought in that sentence kindled a fire in the mind prepared for a flame which was never extinguished. This thought held his attention; it took possession of his memory; it quickened the imagination already glowing with romances of another sort; it decided his life. These words had been read and recited by thousands of boys before, but to this boy they were spirit and life. They became a fire in his bones, and proved the intellectual energy which had been slumbering within, by the force of the reaction which they aroused. So definite was the impression which they made, and so fervent and serious the resolve which they called into life, that he promptly summoned his companions, that he might solemnly announce to them his purpose henceforth to dedicate himself to a priesthood of love and service at the altar of science. To prepare for this service was no holiday work. His novitiate involved labor and self-denial. He must earn the means which would buy not only books and leisure and tuition, but also food and clothing. How these difficulties were surmounted it is needless to recite. The story is more or less familiar to you all.

It is important to notice that this work of preparation was neither hasty nor superficial. He did not rush with reckless impetuosity within the temple, nor leap with a bound to the footsteps of the altar. He mastered the geometry, without which Plato admitted no man even to the vestibule of science. He became familiar with the Calculus, as the magic spell by which to interpret her inner mysteries. Experiments with that wondrous chemistry which was then at its most brilliant stage of promise and performance fascinated and quickened his imagination and his intellect. Each forward step was taken in orderly succession, though each single step was the stride of a giant.

At the age of twenty-eight we find him a professor in the Albany Academy, of which he had been a graduate, charged with the work of teaching several hours every day, and tasking himself with burning zeal over every possible inquiry in chemistry and physics. As we have said already, it was in the brilliant dawn of modern chemistry. As this new science steadily rose above the horizon, one new discovery after another flashed its light toward the zenith and indicated its upward path of triumph. In its train appeared those new and mysterious agencies which were then just beginning to fix the attention and to task the analysis of the oldest and the newest discoverer. To these novel phenomena the young Professor Henry devoted his special attention, and soon astonished the world by achievements which first awakened

the excitement of bewildered wonder, to convert it into the homage of amazed conviction. There was nothing to be said when, as the plunger went down into its bath, the impotent bar of iron became possessed of a giant's strength, and could pick up and hold a weight of more than a solid ton, and as the same plunger was lifted this gigantic energy vanished as at the word of an enchanter. The speaker well remembers the excitement which this discovery occasioned when the first experiment was tried at Yale college, in presence of a few spectators who casually met at the call of Professor Silliman, who was glowing with animation and delight. The ponderous platform was loaded with pig-iron and other heavy weights, with a few slight additions of living freight. Among the last was the speaker, being the lightest of all, and therefore convenient to serve on the sliding scale. It is more than fifty years ago, but the scene is as vivid as the events of yesterday. The question went around, "Who is Professor Henry, and how did it happen that nature revealed to him one of her choicest secrets?" Thoughtful men asked, "What is this wondrous Protean force which he was the first to follow in its sinuous hiding places and evoke by a magician's wand; and what are its relations to its kindred agents, and, above all, to the matter about us, which we can measure and weigh and see and handle?" Others asked the still more important question, "How came the discoverer to surmise its mysterious capacities and to penetrate to the laws of its action?" To some it seemed but a successful guess by a daring adventurer, a happy hit by a rude fumbler among nature's tools, a lucky accident, like the drawing of a prize in a lottery. It was not so with those who retraced the successive steps of close observation, of sagacious interpretation, of boundless invention, of ingenious construction, of patient trial, of loving sympathy, which preceded this single achievement, and all of which combined lifted at once this youth, hitherto unknown, into the rank of the most eminent discoverers, brilliant as was their company then and since. This achievement was not solitary. It was quickly followed by others almost as fruitful as the parent discovery. Conspicuous among these were the possible and certain application of the electro-magnetic power to distant communication, by the alternate lifting and dropping of the armature, moving as a lever, when conjoined with the indefinite linear extension and multiplied intensification of the subtle and enormous agency. Herein was discovered the scientific secret and the assured prophecy of telegraph and telephone, with their wonders of written language and audible speech.

From Albany, in the year 1832, Professor Henry was transferred to

Princeton, through the wise sagacity of our honored associate, Rev. President John Maclean, and the generous and cordial recommendations of some of the most honored leaders of American science. The step was a bold one, and might seem almost rash, to transfer to a college a man who had himself lacked the breadth of early culture and the discipline and acquisitions of scientific thought which the college curriculum is supposed to give. His insight into nature's secrets might seem to be magical; but for this very reason could he share these secrets with his pupils? Would not the very swiftness of his own processes of thought disqualify him from imparting them to others? Would not the lightning rapidity with which, as a discoverer, he had leaped from indication to theory, and combined probabilities into evidence, hinder him from discerning that there were any steps in the process or any articulation in the proofs? Whatever misgivings of this sort there might have been—and the failures of many eminent scientists have proved that they were not without reason—were all set aside by his acknowledged skill as an instructor at Albany and his pre-eminent success at Princeton. Not only did he give himself to instruction with exemplary zeal and pains-taking, but he studied the theory of teaching as he studied electromagnetism, by reflecting upon its conditions and laws, and using wise experiments in concrete applications. He did more. He used his special studies as examples of general philosophical inquiry, whatever might be the subject-matter, and sought by means of these to introduce his pupils to the theory of inductive research and the nature of scientific evidence, however these should be applied. This was a subject which he had ever at heart—the discipline of the mind to a true philosophic method, as the best preparation and security for sound science, clear insight, strong convictions, and practical wisdom. But he was none the less but rather the more active and enterprising in his favorite studies, a living and inspiring example of scientific ardor, of wakeful enterprise, and unceasing experimentation. It would seem as though every thunder storm brought him a new opportunity; every gale of wind swept into his mind some new freightage of thought; every apartment proposed or solved some problem in acoustics; every morning dawn waked him for some fresh experiment, and every evening shut down the day with some new acquisition. His very house was made an enormous electric accumulator and conductor of electric energy. In all these varied avocations it was not in that he was busy or many-sided that his marked superiority was seen, but in that he was original, wide-minded, and persevering. His insight seemed to pen-

trate at a glance into the secrets of nature, and his capacity for sagacious hypothesis almost to call into being the forces which it uncovered and to impose the laws which it interpreted. Besides this there was a largeness and originality in his experiments which invested him with the authority of priest and magician in the presence of nature. In all combined there was the strength and simplicity of scientific genius.

This active and fruitful life continued for fourteen years, when, at the age of forty-eight, in the year 1846, he was called to Washington as the first Secretary of the Smithsonian Institution.

At first it might seem that a situation like this would be attractive to any man, but on second thought many reasons would suggest themselves why, to a man like Professor Henry, interested as he was in teaching, devoted to research, and with the scientific world watching eagerly his experiments, the attractions of the place should be scanty and feeble. It is only when we learn how he regarded the possibilities and demands of the place, and his own capacity and purpose to meet them, that we can explain the readiness with which he responded to this call. The Secretary was to initiate and control the policy of a novel institution, with a handsome but not extravagant endowment given to the United States, for the increase and diffusion of knowledge among men. Loosely interpreted, the terms of the gift might admit any application of popular usefulness. But when read in the light of the known tastes of the giver and the previous bequest of his estate to a society which was severely scientific in its functions, and especially when interpreted by the eminent need and certain usefulness of a special application, it became clear to Professor Henry that this gift should be used exclusively in the interests of the increase and diffusion of *scientific knowledge*. He fore-saw and foretold that his theory would at first encounter active dissent and opposition. He was equally confident that it would finally become popular and attractive. Before he entered upon his duties the Institution had been partially committed to another policy. It was not till after eight years of discussion and reports in committees and in both houses of Congress, in which some of the ablest and most brilliant members were conspicuous, that the policy of Professor Henry at last prevailed, and has ever since justified itself to the approval of the nation. It was not because Professor Henry despised literature that he did not favor the attempt to found a splendid library, for few men were more sensitive to its charms or appreciative of its power. Much less that he did not understand the value of a museum to an ardent interest in which he was pledged by his fondness for natural history and his curious zeal

in ethnology and archæology, but because he saw a need and opportunity for an institution that should be limited to the increase and diffusion of scientific knowledge. *Finis coronat opus.* The experiment has justified the theory. Not only have the workings of the Smithsonian Institution vindicated the wisdom of his anticipations, but it is itself a monument to his strong convictions and unyielding tenacity, tempered as these were by singular simplicity, patience, and unselfishness. Had it not been for these characteristics the Smithsonian Institution as we know it would never have existed at all. Were it not for the modesty of the man we could hear this statue speak as it surveys the scene of his life-work, *Si monumentum quæris, circumspice.* More than this should be said. Every one of the great interests which were at first loaded upon the Institution, as the National Library, the Museum, and a collection of Art, has in the end been better provided for and attained a more vigorous growth or a more hopeful promise than had Professor Henry's policy failed. Had he relaxed from his tenacity, or had a man of less commanding influence represented his opinions, these separate interests might have foundered with the central bureau, or had the Smithsonian Institution survived, it might have been what it seems to many a casual visitor—merely a show place to stimulate and gratify an aimless curiosity, or in which to pass an idle hour of gazing and wonder—instead of being what it is, a busy working place, where research is devised, directed, stimulated, and rewarded, at which its results are reported and thence diffused through the countless nerve centers which animate and build the complicated organism which maintains the scientific life of the civilized world. In this organism this Institution holds a place and performs a function which has no exact counterpart. It is a function which is specially needed in a young and growing country like our own, so vast in its spaces, so comprehensive in its geology, so varied in its climate, so ample in its physical resources, so fascinating in its archæology, so mysterious in its ethnology, so instructive in its history—all the parts of which are connected by political bonds with its capital, and respond with a more or less ready sympathy to the pulses of life which throb at the Nation's heart. It was no slight service which Professor Henry rendered to his country as well as to the world when he gave character and efficiency to this new agency in the life of both.

To mature and carry into effect the conception of such an institution, with no model after which to copy, was the work of a master mind and was worthy of a devoted and laborious life. That Professor Henry gave to this work the best activities of more than thirty years no man

will doubt; that he was unwearied in his labors and cares, faithful to the minutest details and energetic in administration, is confessed by all men. His official correspondence would have been burdensome had it been merely a correspondence of routine, but much of it involved profound reflection, productive invention, and the skillful enforcement of principles. Into all these services he entered with a spirit which was conscientious and patient in the extreme.

It would not have been surprising if his scientific ardor had thereby been cooled, his invention had been limited, and his many-sidedness had been curtailed. This does not seem to have been true. From the beginning to the end of these more than thirty years he was almost as inventive, ingenious, alert, and wide-minded as when he achieved the triumphs of his earliest manhood. Though many of his discoveries and inventions were in the line of his official responsibilities, they all bore the stamp of scientific genius. During all this period, it should be remembered, the sciences of nature were making a progress such as the world had never witnessed before—progress in every form, from the severest mathematical analysis, through the ever ascending steps of adventurous speculation, up to the most gorgeous cloud-lands of theory. Experiment, too, had never made such daring ventures, whether in the form of applications to art or the determination of problems purely scientific. With every one of these onward movements, whether of theory or experiment, Professor Henry was in active sympathy. In many of the most important he was the leader of thought and act, as witness his place in the very earliest anticipations of the doctrine of the correlation of force; his prophetic experiments and suggestions in respect to the use of the telegraph in meteorological observations and the reports of astronomical discovery; his devices to render available the reports and essays scattered over the scientific world by a systematized bibliography; his long-continued researches in respect to light and sound which were incidental to his official experiments as a member of the Light-House Board; his comprehensive experiments in respect to the sustaining capacity of building stone; and his never-ceasing study of acoustics in every possible production, prolongation, and disturbance of sound, whether in his own parlor, in solitary walks, in fog or sunshine, or in travel by land or sea.

It was, as I have said, a great thing for science and for the country, that in this formative and fermenting period such a man resided at the capital and represented the interests of science by his official connection with this one national institution which was sacredly devoted to

scientific research and information. He had foreseen and foretold from the first that Washington would certainly become a great center of scientific activity; that it must inevitably be the residence and resort of an increasing number of men of scientific tastes and pursuits. He had this in mind from the first, and uttered it as a prophecy, before his own policy in respect to the Smithsonian Institution had been accepted, and long before the signs had multiplied of its speedy fulfillment.

This fulfillment was indeed conditional on the continuance of the nation's integrity and the perpetuation of its united life. There were times when this seemed doubtful, when from the Capitol itself, and even from this Institution below it, there might almost be descried the threatening lines and fortifications of those who would not scruple to sacrifice both to the impetuous necessity of what was called lawful war. During these years of agitating strife it was but the dictate of a well-poised self-command which kept Professor Henry quietly at his work, with no doubtful loyalty indeed, but in such singleness of aim, that when peace was conquered it found no personal bitterness towards himself in the ranks of scientific men. To his philosophic wisdom and his unquestioned integrity it may, in part, be owing that, after the centennial anniversary of 1876, the nation was so ready to enlarge the appliances of science and at the same time to commemorate its own continued life by erecting upon these grounds, under the care of the Smithsonian Institution, the splendid National Museum, which all delight to visit and to praise.

The fact cannot be disguised that the devotees of science have alienations and strifes of their own, sometimes arising from personal jealousies and more frequently from opposing theories. Professor Henry was lifted above all personal partisanship by the severe singleness with which he devoted himself to his scientific and official activities. He never sought for place or honor, directly or indirectly. He was fastidiously sensitive in respect to the appropriation of his own inventions by the production of a patent or a claim for extra compensation. His salary was notoriously smaller than he might have earned in other posts, but he never either deserted his post, or asked for increase of pay. Indeed the last was declined more than once when suggested by his friends. It was only when his truthfulness was questioned in respect to one of the most important of his discoveries, that he vindicated his claims to scientific confidence. Whoever might be jealous of his fellow scientists, no one could question Henry's even-handed justice or his personal uprightness.

In the wars of theory against theory he was recognized as an upright mediator, who thoroughly understood the criteria by which scientific truth can be established and would impartially apply them. If political or ethical or theological traditions seemed to conflict with established scientific principles or facts, he calmly awaited the issue and insisted that science must have its rights whatever might be the consequences to any received ethical or theological interpretations. Though his own faith was fixed and fervent in respect to the leading Christian verities, he scorned with all the energy of scientific integrity to apply these convictions as a test to any question that was properly scientific. It would have been strange if a man who was always learning something new had not modified his views of objective and practical Christian truth with the progress of his mind and his manhood, but he would never acknowledge any base compromise of sentimentalism or mysticism or one-eyed dogmatism with the processes or conclusions of his scientific thinking. Within the domain of science proper he was a clear-eyed, impersonal, and uncompromising arbiter and judge. Theorists might complain, dogmatists might rage, zealots might bemoan, but not one of them would dare accuse the judge of an ignorant or partisan decision.

The multitude of fancied inventors, discoverers, and projectors who came to him for help and encouragement, the crowd of scientific dreamers who craved a favorable decision or official help or patronage, the scores and hundreds whom he was forced to reject and disappoint often of the hopes and dreams of their lives, these all felt that however mistaken he might be, he was upright and kind so far as he knew. They were always patiently listened to and gently dismissed, though they did not always heed his benediction to *go in peace*.

For all these high and varied functions, in his high position, Professor Henry had one supreme advantage, in that he had not only studied and mastered so many of the sciences of nature, but that he made science itself in its principles and processes the subject of his profoundest reflection. We have abundant evidence that from the time when he made his earliest discoveries his mind was not content to search after the secrets of nature without, but was equally curious to discover the secret of the processes by which man interprets the forces and laws which nature hides with such studious reserve. From the time when he began at Albany till the end of his life this was prominently and avowedly the theme of his constant meditation. In making this a study he was not singular among eminent scientists, but only in that from the beginning

to the end this seemed to haunt him as the most wonderful problem of all. This habit forced him to contemplate all the sciences of nature as an organic whole, having intimate relations that are broader and deeper than those which are limited to any single class of phenomena. It forced him to study and question most closely the process of knowledge, the sublimest and most fundamental phenomenon in nature, that he might know how far to trust its products and by what criteria to test its conclusions. We find evidence of this habit of mind in the questions which he suggests in his earlier essays and in the partial solutions which he gives in his miscellaneous writings. Such a habit would insensibly train him to exalt the human intellect in its higher functions, with its principles and laws, its axioms and intuitions, its theories and anticipations, its forecasting questionings, its creative hypotheses, its tentative theories, and its decisive experiments, and to assure himself that an agent or agency such as this could have no affinity with matter and own no allegiance to physical laws. Even in the suggestion that the thinking agency which interprets the universe by authoritative question and answer, could once have slumbered in a fiery cloud or could have been evolved from any material mind-stuff, by any series of physical processes, however daintily phrased, seems never to have been entertained by him for an instant as having the semblance of scientific probability. And yet there is abundant evidence from his writings, both early and late, that he was in no sense behind the times or ignorant of the fascinating plausibilities of the newest and the most fantastic of theories. While he was almost the earliest in the field to formulate and defend the doctrine of the correlation of force and to concede that it may be applied to all the processes that are properly physiological, he was equally sharp and positive in the assertion that the mental agencies of every kind cannot be the correlate of any physical or biological agency. He insisted with equal positiveness that the so-called vital force cannot be the product of any mechanical or chemical activity, single or in combination, but must be a directive and constructive agent of itself. Later in life he recognized the manifold indications of the presence of a law of progressive variation in the history of animal and vegetable life, and so far accepted evolution as a working hypothesis. But had he been asked at any time whether evolution as a force or evolution as a law, one or both, apart or together, could explain the origin of life and of living men, of intellect and will and the capacity for science and faith in science, I think he would have regarded the question somewhat as

though he had been asked whether he believed in the vortices of Descartes or in Kepler's directing angels. Had this doctrine been defended in a scientific association, either in the soaring gyrations of winged speech or the dry assertions of dogmatic positiveness, I am confident he would have remanded its champions at once to the blackboard, and have begged them first to explain whether evolution were an agent, a force, or a law, and then desired them to identify it if it were an agent, to define it if it were a force, or to formulate it if it were a law. Large as was the sphere which he assigned to the imagination, and important as the role which he allowed to hypotheses, he would bring every theory, however brilliant and plausible, to the triple test of coherence, sufficiency, and experiment.

Forward and hopeful as he had been all his life long to follow the fruitful suggestions of analogy, he never would allow this winged steed to cross the chasms of scientific theory with any flying leaps, without insisting that it should first fold and pack its pinions, and then carefully retrace its steps along that hard pathway of fact and law which alone can carry us safely from a scientific hypothesis to a scientific truth. The science of America owes somewhat to his example and authority in this regard, that its brilliant promises and solid achievements have been so far kept free from the speculative audacities and the physiological cosmogonies from which the science of England and Germany has not been wholly exempt.

This, be it observed, was his position within the domains of pure science. For the region beyond, whether it is called the domain of philosophy or the domain of faith, let it suffice to say that he had too positive a respect for his own mind to doubt for an instant that this intellect was the reflex of that supreme intellect which sustains and controls the universe which the scientist interprets. The existence of a personal God was accepted by him as a well nigh self-evident truth which is as necessary to our confidence in scientific study as to our hopes for man's social and moral well being. The moral and spiritual capacities and destiny of man were regarded by him as dominant facts and chief ends in the universe made up of matter and spirit, facts and ends so important and so pressing as to create the need and establish the truth of the Christian's faith and hope. He believed moreover in no inherent law of progress in human nature or human society as such. On the contrary he asserted often that our supreme hope of such progress, even in scientific culture and achievement, must rest on moral integrity and

culture as the supreme conditions. In his closing address to the National Academy he urged "that moral integrity is essential to conscientious fidelity in scientific research," and added, "Indeed, I think that immorality and great mental power exercised in the discovery of scientific truths are incompatible with each other; and that more error is introduced from defect in moral sense than from want of intellectual capacity." To the Philosophical Society of Washington he had designed to give, as probably his last formal communication, an address upon the relations of science and religion, and also upon the true import of prayer. This he was not permitted to do, but those who knew him best knew most fully that in prayer he found constant delight and strength. Almost the last lines which he penned contain a positive and tender yet rational confession of his Christian faith. Almost the last words which he uttered were with tearful eyes and from quivering lips, "Upon Jesus Christ as the one who, for God, affiliates himself with man—upon Him I rest my faith and my hope."

Such a man was Joseph Henry. With eminent truth may we say of him, as Wordsworth wrote of Milton :

Thy soul was like a star, and dwelt apart;
Thou hadst a voice whose sound was like the sea,
Pure as the naked heavens, majestic, free;
So didst thou travel on life's common way,
In cheerful godliness; and yet thy heart
The lowliest duties on itself did lay.

For more than fifty years, the most memorable and critical which the sciences of nature have ever seen, he has been indeed a guiding star to their devotees in all this land, ever shining with a severe yet commanding light. During the critical years of its young and buoyant life, American science has found much of the guidance and inspiration which it needed in his childlike yet kingly spirit. And now as it rejoices in the security of its position and its ever-increasing honors, it is most fitting that its assembled representatives should here gratefully acknowledge their obligations to their eminent benefactor and distinguished leader, and cordially welcome this statue, which by its commanding proportions gives new dignity to the ground so long honored by his presence and associated with his name. Long may it stand to express to them and to other generations the sturdy self-confidence, the keen insight, the benignant spirit, the soaring yet docile genius, the self-relying yet devout temper which made JOSEPH HENRY a leader and commander in their conquering hosts. And as here by day and by night,

in sunshine and in storm, our honored friend shall ever as in his life-time keep watch and guard over the scene of his cares and labors, of his conflicts and triumphs, so may his memory be kept in fresh and grateful recollection by the coming generations. And as this Institution, so eminently the creation of his mind, shall become more and more busy in its activities and more and more conspicuous in its usefulness and its fame, may the spirit of its eminent originator continue to inspire its aims and direct its counsels—to the strength and glory of this nation and the well-being of man.

To the well-being of man. For let us never forget that science knows no nationality, least of all in this place and in this Institution, which was the gift from the mother to the daughter land, whose sacred trust and solemn duty has ever been, as it ever should be, to promote "*the increase and diffusion of knowledge among men.*"





